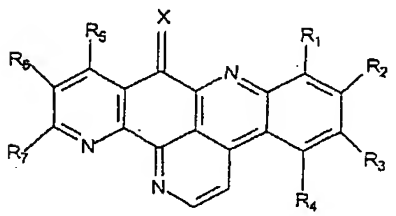
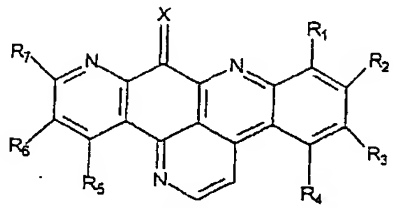
CLAIMS

1. A pharmaceutical composition comprising an effective amount of a compound chosen from the compounds of general formulae I and Ia below for treating, by virtue of their cytotoxic properties, cancerous tumors and their metastases:



Formula I



Formula Ia

in which:

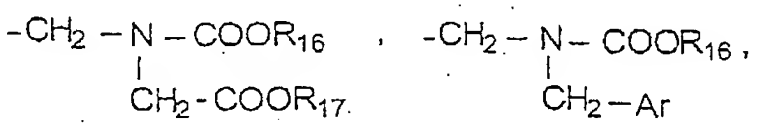
- X is chosen from oxygen, an =NH group and an =N-OH group,
- R_1 is chosen from hydrogen, halogens, a nitro group and groups $-NR_8R_9$ in which R_8 and R_9 are chosen, independently of each other, from hydrogen and (C_1-C_4) alkyl groups,
- R_2 is chosen from hydrogen and halogens,
- R_3 is chosen from hydrogen, halogens, (C_1-C_4) alkyl groups, (C_1-C_6) alkoxy groups, a guanidino group, groups $-NR_{10}R_{11}$ in which R_{10} and R_{11} are chosen, independently of each other, from hydrogen, (C_1-C_4) alkyl groups, (C_1-C_4) phenylalkyl groups and groups $-(CH_2)_n-Y$ with Y being chosen from halogens and CN, $-CH(O-Et)_2$, (C_1-C_6) alkoxy, $-O-(CH_2)_2-N(CH_3)_2$ and $-N(CH_3)_2$ groups and n = 1 to 3,
- R_4 is chosen from hydrogen, halogens, nitro groups and groups $-NR_{12}R_{13}$ in which R_{12} and R_{13} are chosen, independently of each other, from hydrogen and (C_1-C_4) alkyl groups,
- R_5, R_6 and R_7 are chosen from:

hydrogen or a halogen atom,

C_1-C_6 alkyl, hydroxyl, C_1-C_6 alkoxy, (C_1-C_6)alkoxy(C_1-C_6)alkyl, (C_1-C_4)alkylcarbonyloxy-(C_1-C_4)alkyl, -CHO, -COOH, -CN, $-CO_2R_{14}$, $-CONHR_{14}$ and $-CONR_{14}R_{15}$ groups, $-NHCOR_{14}$ and $-NR_{14}R_{15}$ in which R_{14} and R_{15} are chosen, independently of each other, from hydrogen and (C_1-C_6) alkyl, -phenyl-CO-CH_3 and $-CH_2-CH_2-N(CH_3)_2$ groups,

-phenyl-CO-CH_3 or -phenyl-CO-CH=CH-$N(CH_3)_2$, morpholino, nitro or SO_3H groups,

groups:



R_{16} and R_{17} being chosen from C_1-C_6 alkyl groups and Ar being a C_6-C_{14} aryl group,

with the exclusion of the compounds of formula I containing the combination:

X = O,

and, either : R_1, R_2, R_3, R_4, R_5, R_6, R_7 = H,

or : R_1, R_3, R_4, R_5, R_6, R_7 = H and R_2 = Br,

or R_1, R_2, R_3, R_4, R_6, R_7 = H and R_5 = OH

and with the exclusion of the compound formula Ia containing the combination X = O and R_1, R_2, R_3, R_4, R_5, R_6, R_7 = H,

and the addition salts of these compounds with pharmaceutically acceptable acids.

2. A pharmaceutical composition comprising an effective amount of a compound chosen from the compounds of formula I in which:

- X is chosen from oxygen, an =NH group and an =N-OH group,
- R_1 is chosen from hydrogen, halogens, a nitro group and groups $-NR_8R_9$ in which R_8 and R_9

are chosen, independently of each other, from hydrogen and (C_1-C_4) alkyl groups,

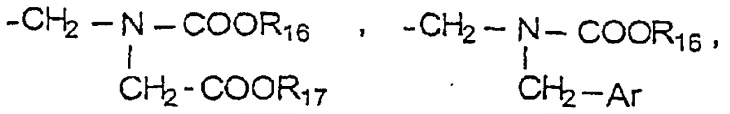
- R_2 is chosen from hydrogen and halogens;
- R_3 is chosen from hydrogen, halogens, (C_1-C_4) alkyl groups, (C_1-C_6) alkoxy groups, a guanidino group, groups $-NR_{10}R_{11}$ in which R_{10} and R_{11} are chosen, independently of each other, from hydrogen, (C_1-C_4) alkyl groups, (C_1-C_4) phenylalkyl, $-(CH_2)_2-N(CH_3)_2$, and $-(CH_2)_2-O-(CH_2)_2-N(CH_3)_2$ groups,
- R_4 is chosen from hydrogen, halogens, nitro groups and groups $-NR_{12}R_{13}$ in which R_{12} and R_{13} are chosen, independently of each other, from hydrogen and (C_1-C_4) alkyl groups,
- R_5, R_6 and R_7 are chosen from:

hydrogen or a halogen atom,

C_1-C_6 alkyl, hydroxyl, C_1-C_6 alkoxy, -CHO, -COOH, -CN, $-CO_2R_{14}$, $-CONHR_{14}$ and $-CONR_{14}R_{15}$ groups, $-NHCOR_{14}$ and $-NR_{14}R_{15}$ groups in which R_{14} and R_{15} are chosen, independently of each other, from hydrogen and (C_1-C_6) alkyl and $-CH_2-CH_2-N(CH_3)_2$ groups,

-phenyl-CO-CH_3 or -phenyl-CO-CH=CH-$N(CH_3)_2$, morpholino, nitro or SO_3H groups,

groups:



R_{16} and R_{17} being chosen from C_1-C_6 alkyl groups and Ar being a C_6-C_{14} aryl group,

with the exclusion of the compounds in which X = O, and, either : R_1, R_2, R_3, R_4, R_5, R_6, R_7 = H, or : R_1, R_3, R_4, R_5, R_6, R_7 = H and R_2 = Br, or R_1, R_2, R_3, R_4, R_6, R_7 = H and R_5 = OH,

and the addition salts of these compounds with pharmaceutically acceptable acids.

3. The pharmaceutical composition as claimed in claim 2, comprising an effective amount of a compound chosen from the compounds of formula I in which:

- X represents oxygen,
- R_1 is chosen from hydrogen and an amino group,
- R_2 is chosen from hydrogen and halogens,
- R_3 is chosen from hydrogen, halogens, (C_1-C_4) alkyl groups, (C_1-C_6) alkoxy groups, a guanidino group, groups $-NR_{10}R_{11}$ in which R_{10} and R_{11} are chosen, independently of each other, from hydrogen, methyl groups, (C_1-C_4) phenylalkyl, $-(CH_2)_2-N(CH_3)_2$, $-(CH_2)_2-O-(CH_2)_2-N(CH_3)_2$ groups,
- R_4 is chosen from hydrogen, halogens and nitro and amino groups,
- R_5, R_6 and R_7 represent a hydrogen,

with the exclusion of the compounds in which R_1, R_2, R_3, R_4, R_5, R_6, R_7 = H, or R_1, R_3, R_4, R_5, R_6, R_7 = H and R_2 = Br,

and the addition salts of these compounds with pharmaceutically acceptable acids.

4. The pharmaceutical composition as claimed in claim 1, comprising an effective amount of a compound chosen from the compounds of formulae I and Ia in which:

- X represents oxygen,
- R_1 is chosen from hydrogen and an amino group,
- R_2 is chosen from hydrogen and halogens,
- R_3 is chosen from hydrogen, halogens, (C_1-C_4) alkyl groups, (C_1-C_6) alkoxy groups, a guanidino group, groups $-NR_{10}R_{11}$ in which R_{10} and R_{11} are chosen, independently of each other, from hydrogen, methyl groups, (C_1-C_4) phenylalkyl groups and groups $-(CH_2)_n-Y$ with Y being chosen from halogens and groups CN, $-CH(O-Et)_2$, (C_1-C_6) alkoxy, $-O-(CH_2)_2-N(CH_3)_2$ and $-N(CH_3)_2$ and n = 1 to 3,

- R_4 is chosen from hydrogen, halogens, and nitro and amino groups,
- R_5 is chosen from a hydrogen, a halogen and a methoxy group,
- R_6 and R_7 are chosen from hydrogen and C_1-C_6 alkoxy, (C_1-C_6)alkoxy(C_1-C_6)alkyl and $-CH_2OCOCH_3$ groups,

with the exclusion of the compounds of formula I in which R_1, R_2, R_3, R_4, R_5, R_6, R_7 = H or R_1, R_3, R_4, R_5, R_6, R_7 = H and R_2 = Br, and of the compound of formula Ia in which R_1, R_2, R_3, R_4, R_5, R_6, R_7 = H,

and the addition salts of these compounds with pharmaceutically acceptable acids.

5. The composition as claimed in claim 4, in which the compounds are chosen from:
5-(dimethylamino)-9H-quino[4,3,2-de][1,10]phenanthrolin-9-one,
5-(benzylamino)-9H-quino[4,3,2-de][1,10]phenanthrolin-9-one,
5-bromo-9H-quino[4,3,2-de][1,10]phenanthrolin-9-one,
7-amino-9H-quino[4,3,2-de][1,10]phenanthrolin-9-one,
5-amino-9H-quino[4,3,2-de][1,10]phenanthrolin-9-one,
5-methyl-9H-quino[4,3,2-de][1,10]phenanthrolin-9-one,
10-methoxy-9H-quino[4,3,2-de][1,10]phenanthrolin-9-one,
5-methoxy-9H-quino[4,3,2-de][1,10]phenanthrolin-9-one,
7-nitro-9H-quino[4,3,2-de][1,10]phenanthrolin-9-one,
5-chloro-9H-quino[4,3,2-de][1,10]phenanthrolin-9-one,

5-bromo-10-methoxy-9H-quino[4,3,2-de][1,10]phenanthrolin-9-one,
5-(dimethylamino-2-ethyl)amino-9H-quino[4,3,2-de]-[1,10]phenanthrolin-9-one,
5-bis(2-chloroethyl)amino-9H-quino[4,3,2-de]-[1,10]phenanthrolin-9-one,
5-(2-chloroethyl)amino-9H-quino[4,3,2-de][1,10]-phenanthrolin-9-one,
12-methoxy-9-H-quino[4,3,2-de][1,10]phenanthrolin-9-one,
4-bromo-5-amino-9-H-quino[4,3,2-de][1,10]phenanthrolin-9-one,
11-acetoxymethyl-9-H-quino[4,3,2-de][1,10]phenanthrolin-9-one,
5-bromo-9-H-quino[4,3,2-de][1,7]phenanthrolin-9-one,
5-amino-9-H-quino[4,3,2-de][1,7]phenanthrolin-9-one,
5-(dimethylamino-2-ethyl)amino-9-H-quino[4,3,2-de][1,7]phenanthrolin-9-one,
5-bis(chloroethylamino-2-ethyl)amino-9-H-quino-[4,3,2-de][1,7]phenanthrolin-9-one,
5-(chloroethylamino-2-ethyl)amino-9-H-quino[4,3,2-de][1,7]phenanthrolin-9-one,
4-bromo-5-amino-9-H-quino[4,3,2-de][1,7]phenanthrolin-9-one,
7-nitro-9-H-quino[4,3,2-de][1,7]phenanthrolin-9-one,
7-amino-9-H-quino[4,3,2-de][1,7]phenanthrolin-9-one,
12-methoxy-9-H-quino[4,3,2-de][1,7]phenanthrolin-9-one,
and the addition salts thereof with pharmaceutically acceptable acids.

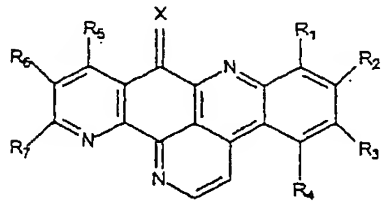
Sub A1

6. The use of a compound as defined in one of claims 1 to 5, for the manufacture of an anticancer drug.

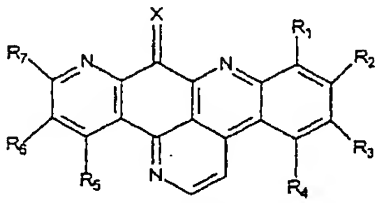
7. The use as claimed in claim 6, in which the compounds are chosen from:
5-(dimethylamino)-9H-quino[4,3,2-de][1,10]phenanthrolin-9-one,
5-(benzylamino)-9H-quino[4,3,2-de][1,10]phenanthrolin-9-one,
5-bromo-9H-quino[4,3,2-de][1,10]phenanthrolin-9-one,
7-amino-9H-quino[4,3,2-de][1,10]phenanthrolin-9-one,
5-amino-9H-quino[4,3,2-de][1,10]phenanthrolin-9-one,
5-methyl-9H-quino[4,3,2-de][1,10]phenanthrolin-9-one,
10-methoxy-9H-quino[4,3,2-de][1,10]phenanthrolin-9-one,
5-methoxy-9H-quino[4,3,2-de][1,10]phenanthrolin-9-one,
7-nitro-9H-quino[4,3,2-de][1,10]phenanthrolin-9-one,
5-chloro-9H-quino[4,3,2-de][1,10]phenanthrolin-9-one,
5-bromo-10-methoxy-9H-quino[4,3,2-de][1,10]phenanthrolin-9-one,
5-(dimethylamino-2-ethyl)amino-9H-quino[4,3,2-de]-[1,10]phenanthrolin-9-one,
5-bis(2-chloroethyl)amino-9H-quino[4,3,2-de]-[1,10]phenanthrolin-9-one,
5-(2-chloroethyl)amino-9H-quino[4,3,2-de][1,10]-phenanthrolin-9-one,
12-methoxy-9-H-quino[4,3,2-de][1,10]phenanthrolin-9-one,
4-bromo-5-amino-9-H-quino[4,3,2-de][1,10]phenanthrolin-9-one,
11-acetoxymethyl-9-H-quino[4,3,2-de][1,10]phenanthrolin-9-one,
5-bromo-9-H-quino[4,3,2-de][1,7]phenanthrolin-9-one,

5-amino-9-H-quino[4,3,2-de][1,7]phenanthrolin-9-one,
5-(dimethylamino-2-ethyl)amino-9-H-quino[4,3,2-de][1,7]phenanthrolin-9-one,
5-bis(chloroethylamino-2-ethyl)amino-9-H-quino-[4,3,2-de][1,7]phenanthrolin-9-one,
5-(chloroethylamino-2-ethyl)amino-9-H-quino[4,3,2-de][1,7]phenanthrolin-9-one,
4-bromo-5-amino-9-H-quino[4,3,2-de][1,7]phenanthrolin-9-one,
7-nitro-9-H-quino[4,3,2-de][1,7]phenanthrolin-9-one,
7-amino-9-H-quino[4,3,2-de][1,7]phenanthrolin-9-one,
12-methoxy-9-H-quino[4,3,2-de][1,7]phenanthrolin-9-one,
and the addition salts thereof with pharmaceutically acceptable acids.

8. Compounds of general formulae I and Ia



Formula I



Formula Ia

in which:

- X is chosen from oxygen, an =NH group and an =N-OH group,
- R_1 is chosen from hydrogen, halogens, a nitro group and groups $-NR_8R_9$ in which R_8 and R_9 are chosen, independently of each other, from hydrogen and (C_1-C_4) alkyl groups,
- R_2 is chosen from hydrogen and halogens,
- R_3 is chosen from hydrogen, halogens, (C_1-C_4) alkyl groups, (C_1-C_6) alkoxy groups, a

guanidino group, groups $-NR_{10}R_{11}$ in which R_{10} and R_{11} are chosen, independently of each other, from hydrogen, (C_1-C_4) alkyl groups, (C_1-C_4) phenylalkyl groups and groups $-(CH_2)_n-Y$ with Y being chosen from halogens and CN, $-CH(O-Et)_2$, (C_1-C_6) alkoxy, $-O-(CH_2)_2-N(CH_3)_2$ and $-N(CH_3)_2$ groups and n = 1 to 3,

- R_4 is chosen from hydrogen, halogens, nitro groups and groups $-NR_{12}R_{13}$ in which R_{12} and R_{13} are chosen, independently of each other, from hydrogen and (C_1-C_4) alkyl groups,

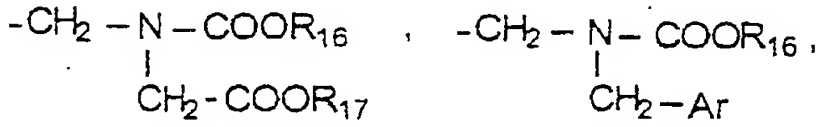
- R_5, R_6 and R_7 are chosen from:

hydrogen or a halogen atom,

C_1-C_6 alkyl, hydroxyl, C_1-C_6 alkoxy, (C_1-C_6)alkoxy(C_1-C_6)alkyl, (C_1-C_4)alkylcarbonyloxy-(C_1-C_4)alkyl, -CHO, -COOH, -CN, $-CO_2R_{14}$, $-CONHR_{14}$ and $-CONR_{14}R_{15}$ groups, $-NHCOR_{14}$ and $-NR_{14}R_{15}$ in which R_{14} and R_{15} are chosen, independently of each other, from hydrogen and (C_1-C_6) alkyl, -phenyl-CO-CH_3 and $-CH_2-CH_2-N(CH_3)_2$ groups,

-phenyl-CO-CH_3 or -phenyl-CO-CH=CH-$N(CH_3)_2$, morpholino, nitro or SO_3H groups,

groups:



R_{16} and R_{17} being chosen from C_1-C_6 alkyl groups and Ar being a C_6-C_{14} aryl group,

with the exclusion of the compounds of formula I in which X = O, and, either R_1, R_2, R_3, R_4, R_5, R_6, R_7 = H, or R_1, R_3, R_4, R_5, R_6, R_7 = H and R_2 = Br, or R_1, R_2, R_4, R_5, R_6, R_7 = H and $R_3 = OCH_3$, or R_1, R_2, R_3, R_4, R_6, R_7 = H and R_5 = OH or OCH_3, or $R_1 = NO_2$ and R_2, R_3, R_4, R_5, R_6, R_7 =H,

and with the exclusion of the compound formula Ia in which X = O and R_1, R_2, R_3, R_4, R_5, R_6, R_7 = H,

and the addition salts of these compounds with pharmaceutically acceptable acids.

9. Compounds as claimed in claim 8, of formula I in which:

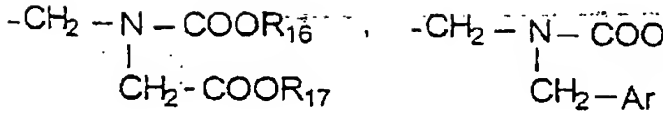
- X is chosen from oxygen, an =NH group and an =N-OH group,
- R_1 is chosen from hydrogen, halogens, a nitro group and groups $-NR_8R_9$ in which R_8 and R_9 are chosen, independently of each other, from hydrogen and (C_1-C_4) alkyl groups,
- R_2 is chosen from hydrogen and halogens,
- R_3 is chosen from hydrogen, halogens, (C_1-C_4) alkyl groups, (C_1-C_6) alkoxy groups, a guanidino group, groups $-NR_{10}R_{11}$ in which R_{10} and R_{11} are chosen, independently of each other, from hydrogen, (C_1-C_4) alkyl groups, (C_1-C_4) phenylalkyl, $-(CH_2)_2-N(CH_3)_2$, and $-(CH_2)_2-O-(CH_2)_2-N(CH_3)_2$ groups,
- R_4 is chosen from hydrogen, halogens, nitro groups and groups $-NR_{12}R_{13}$ in which R_{12} and R_{13} are chosen, independently of each other, from hydrogen and (C_1-C_4) alkyl groups,
- R_5, R_6 and R_7 are chosen from:

hydrogen or a halogen atom,

C_1-C_6 alkyl, hydroxyl, C_1-C_6 alkoxy, -CHO, -COOH, -CN, $-CO_2R_{14}$, $-CONHR_{14}$ and $-CONR_{14}R_{15}$ groups, $-NHCOR_{14}$ and $-NR_{14}R_{15}$ in which R_{14} and R_{15} are chosen, independently of each other, from hydrogen and (C_1-C_6) alkyl and $-CH_2-CH_2-N(CH_3)_2$ groups,

-phenyl-$CO-CH_3$ or -phenyl-$CO-CH=CH-N(CH_3)_2$, morpholino, nitro or SO_3H groups,

groups:



R_{16} and R_{17} being chosen from C_1-C_6 alkyl groups and Ar being a C_6-C_{14} aryl group,

with the exclusion of the compounds in which X = O, and, either R_1, R_2, R_3, R_4, R_5, R_6, R_7 = H, or R_1, R_3, R_4, R_5, R_6, R_7 = H and R_2 = Br, or R_1, R_2, R_4, R_5, R_6, R_7 = H and R_3 = OCH_3, or R_1, R_2, R_3, R_4, R_6, R_7 = H and R_5 = OH or OCH_3, or R_1 = NO_2 and R_2, R_3, R_4, R_5, R_6, R_7 = H,

and the addition salts thereof with pharmaceutically acceptable acids.

10. Compounds as claimed in claim 8, which are:

5-(dimethylamino)-9*H*-quino[4,3,2-*de*][1,10]phenanthrolin-9-one,

5-(benzylamino)-9*H*-quino[4,3,2-*de*][1,10]phenanthrolin-9-one,

5-bromo-9*H*-quino[4,3,2-*de*][1,10]phenanthrolin-9-one,

7-amino-9*H*-quino[4,3,2-*de*][1,10]phenanthrolin-9-one,

5-amino-9*H*-quino[4,3,2-*de*][1,10]phenanthrolin-9-one,

5-methyl-9*H*-quino[4,3,2-*de*][1,10]phenanthrolin-9-one,

5-chloro-9*H*-quino[4,3,2-*de*][1,10]phenanthrolin-9-one,

5-bromo-10-methoxy-9*H*-quino[4,3,2-*de*][1,10]phenanthrolin-9-one,

5-(dimethylamino-2-ethyl)amino-9*H*-quino[4,3,2-*de*][1,10]-phenanthrolin-9-one,

5-bis(2-chloroethyl)amino-9*H*-quino[4,3,2-*de*][1,10]phenanthrolin-9-one,

5-(2-chloroethyl)amino-9*H*-quino[4,3,2-*de*][1,10]phenanthrolin-9-one,

12-methoxy-9-*H*-quino[4,3,2-*de*][1,10]phenanthrolin-9-one,

4-bromo-5-amino-9-*H*-quino[4,3,2-*de*][1,10]phenanthrolin-9-one,

11-acetoxymethyl-9-*H*-quino[4,3,2-*de*][1,10]phenanthrolin-9-one,
5-bromo-9-*H*-quino[4,3,2-*de*][1,7]phenanthrolin-9-one,
5-amino-9-*H*-quino[4,3,2-*de*][1,7]phenanthrolin-9-one,
5-(dimethylamino-2-ethyl)amino-9-*H*-quino[4,3,2-*de*]-[1,7]phenanthrolin-9-one,
5-bis(chloroethylamino-2-ethyl)amino-9-*H*-quino[4,3,2-*de*]-[1,7]phenanthrolin-9-one,
5-(chloroethylamino-2-ethyl)amino-9-*H*-quino[4,3,2-*de*]-[1,7]phenanthrolin-9-one,
4-bromo-5-amino-9-*H*-quino[4,3,2-*de*][1,7]phenanthrolin-9-one,
7-nitro-9-*H*-quino[4,3,2-*de*][1,7]phenanthrolin-9-one,
7-amino-9-*H*-quino[4,3,2-*de*][1,7]phenanthrolin-9-one,
12-methoxy-9-*H*-quino[4,3,2-*de*][1,7]phenanthrolin-9-one,
and the addition salts thereof with pharmaceutically acceptable acids.

11. A process for preparing a compound of formula Ia, in which:

- X is chosen from oxygen, an =NH group and an =N-OH group,
- R_1 is chosen from hydrogen, halogens, a nitro group and groups $-NR_8R_9$ in which R_8 and R_9 are chosen, independently of each other, from hydrogen and (C_1-C_4) alkyl groups,
- R_2 is chosen from hydrogen and halogens,
- R_3 is chosen from hydrogen, halogens, (C_1-C_4) alkyl groups, (C_1-C_6) alkoxy groups, a guanidino group, groups $-NR_{10}R_{11}$ in which R_{10} and R_{11} are chosen, independently of each other, from hydrogen, (C_1-C_4) alkyl groups, (C_1-C_4) phenylalkyl groups and groups $-(CH_2)_n-Y$ with Y being chosen from halogens and CN, $-CH(O-Et)_2$, (C_1-C_6) alkoxy, $-O-(CH_2)_2-N(CH_3)_2$ and $-N(CH_3)_2$ groups and n = 1 to 3,
- R_4 is chosen from hydrogen, halogens, nitro groups and groups $-NR_{12}R_{13}$ in which R_{12} and R_{13}

are chosen, independently of each other, from hydrogen and (C_1-C_4) alkyl groups,

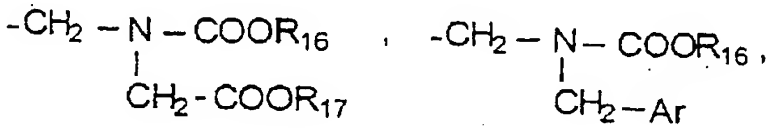
- R_5, R_6 and R_7 are chosen from:

hydrogen or a halogen atom,

C_1-C_6 alkyl, hydroxyl, C_1-C_6 alkoxy, (C_1-C_6)alkoxy(C_1-C_6)alkyl, (C_1-C_4)alkylcarbonyloxy-(C_1-C_4)alkyl, -CHO, -COOH, -CN, $-CO_2R_{14}$, $-CONHR_{14}$ and $-CONR_{14}R_{15}$ groups, $-NHCOR_{14}$ and $-NR_{14}R_{15}$ in which R_{14} and R_{15} are chosen, independently of each other, from hydrogen and (C_1-C_6) alkyl, -phenyl-CO-CH_3 and $-CH_2-CH_2-N(CH_3)_2$ groups,

-phenyl-$CO-CH_3$ or -phenyl-CO-CH=CH-$N(CH_3)_2$, morpholino, nitro or SO_3H groups,

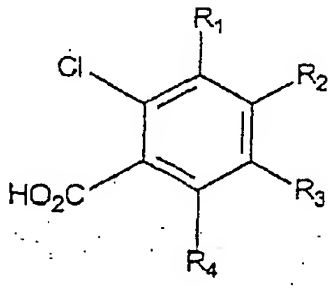
groups:



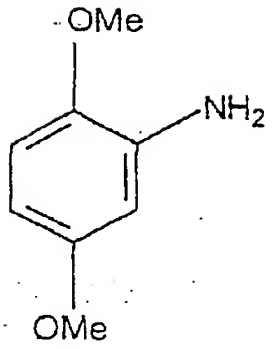
R_{16} and R_{17} being chosen from C_1-C_6 alkyl groups and Ar being a C_6-C_{14} aryl group,

which consists in:

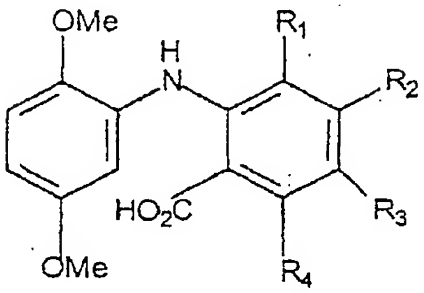
a - condensing a chlorobenzoic acid of formula:



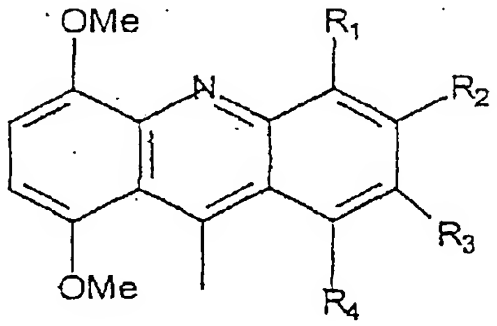
with a dimethoxyaniline of formula:



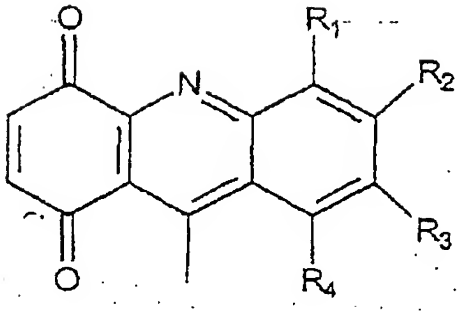
to give a compound of formula IIa:



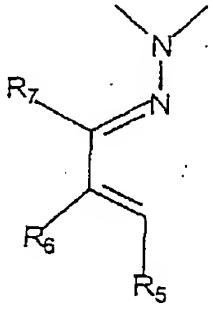
b – cyclizing the compound of formula IIa to give a compound of formula:



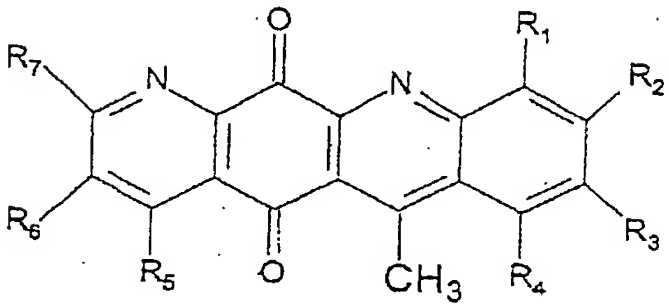
c – converting the compound into a quinone of formula IIIa:



d - reacting the quinone of formula IIIa with an azadiene of formula:



to give a compound of formula IVa:

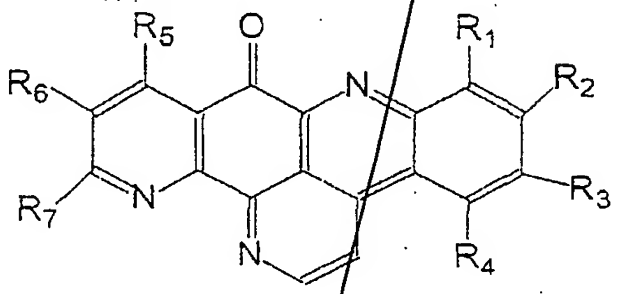


e - reacting the compound of the formula IVa with dimethylformamide diethyl acetal to give the compound of formula Ia,

f - and, optionally, converting the compound thus obtained into another compound of formula Ia.

12. A process for treating patients having a cancer tumor, which consists in administering an effective amount of a compound as defined in claim 1.

13. A process for preparing compounds of general formula I, of formula:



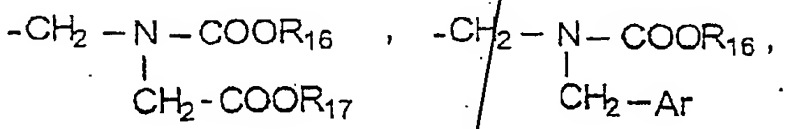
in which:

- R_1 is chosen from hydrogen, halogens, a nitro group and groups $-NR_8R_9$ in which R_8 and R_9 are chosen, independently of each other, from hydrogen and (C_1-C_4) alkyl groups,
- R_2 is chosen from hydrogen and halogens,
- R_3 is chosen from hydrogen, halogens, (C_1-C_4) alkyl groups, (C_1-C_6) alkoxy groups, a guanidino group, groups $-NR_{10}R_{11}$ in which R_{10} and R_{11} are chosen, independently of each other, from hydrogen, (C_1-C_4) alkyl groups, (C_1-C_4) phenylalkyl groups and groups $-(CH_2)_n-Y$ with Y being chosen from halogens and CN, $-CH(O-Et)_2$, (C_1-C_6) alkoxy, $-O-(CH_2)_2-N(CH_3)_2$ groups and $-N(CH_3)_2$ and n = 1 to 3,
- R_4 is chosen from hydrogen, halogens, nitro groups and groups $-NR_{12}R_{13}$ in which R_{12} and R_{13} are chosen, independently of each other, from hydrogen and (C_1-C_4) alkyl groups,
- R_5, R_6 and R_7 are chosen from:

hydrogen or a halogen atom,

C_1-C_6 alkyl, hydroxyl, C_1-C_6 alkoxy, (C_1-C_6)alkoxy(C_1-C_6)alkyl, (C_1-C_4)alkylcarbonyloxy-(C_1-C_4)alkyl, -CHO, -COOH, -CN, $-CO_2R_{14}$, $-CONHR_{14}$ and $-CONR_{14}R_{15}$ groups, $-NHCOR_{14}$ and $-NR_{14}R_{15}$ in which R_{14} and R_{15} are chosen, independently of each other, from hydrogen and (C_1-C_6) alkyl, -phenyl-CO-CH_3 and $-CH_2-CH_2-N(CH_3)_2$ groups, -phenyl-$CO-CH_3$ or -phenyl-CO-CH=CH-$N(CH_3)_2$, morpholino, nitro or SO_3H groups,

groups:

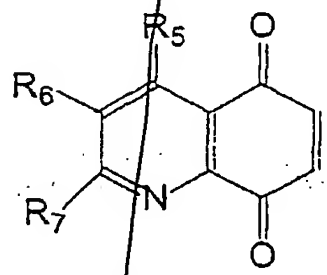


R_{16} and R_{17} being chosen from C_1-C_6 alkyl groups and Ar being a C_6-C_{14} aryl group,

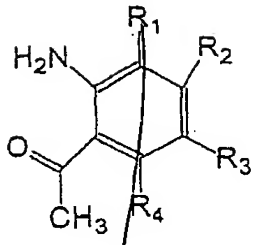
with the exclusion of the compounds of formula I in which either R_1, R_2, R_3, R_4, R_5, R_6, R_7 = H, or R_1, R_3, R_4, R_5, R_6, R_7 = H and R_2 = Br, or R_1, R_2, R_4, R_5, R_6, R_7 = H and R_3 = OCH_3, or R_1, R_2, R_3, R_4, R_6, R_7 = H and R_5 = OH or OCH_3 or R_1 = NO_2 and R_2, R_3, R_4, R_5, R_6, R_7 = H,

which consists

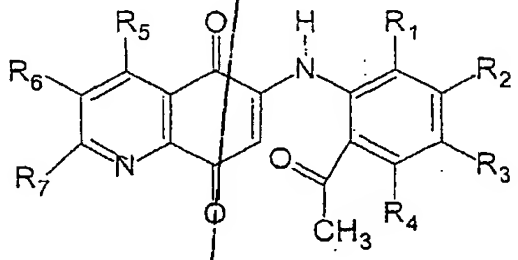
a) in reacting a hydroquinone of formula



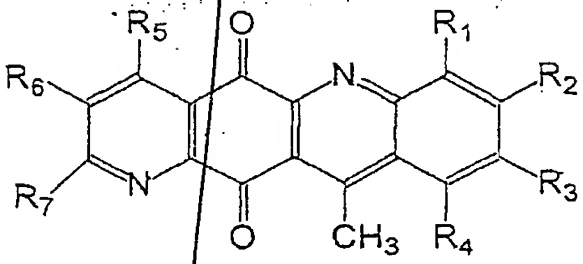
with a compound of formula



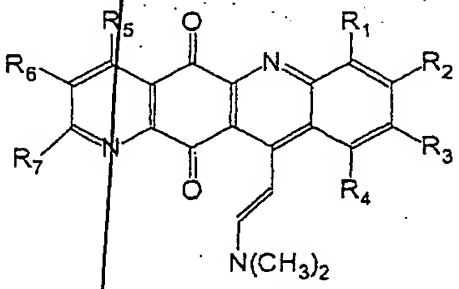
in the presence of $CeCl_3$, $7H_2O$ and ethanol to give a compound of formula II



b) in converting the compound of formula II into a compound of formula III



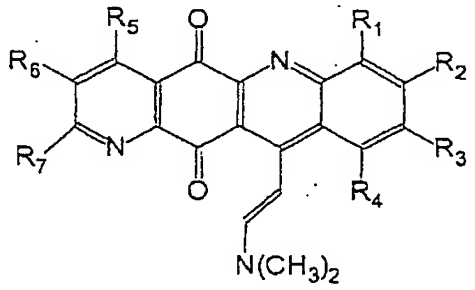
c) in reacting the compound of the formula III with $HC(OC_2H_5)_2N(CH_3)_2$ in DMF at 120°C to form a compound of formula IV



d) in cyclizing the compound of formula IV to a compound of formula I in the presence of NH_4Cl and AcOH,

e) optionally converting the compound of formula I thus obtained into another compound of formula II.

14. A compound of formula



in which:

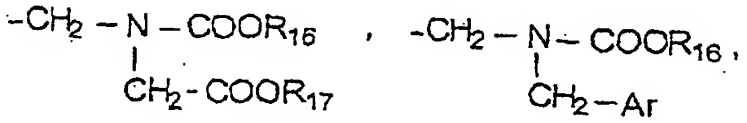
- R_1 is chosen from hydrogen, halogens, a nitro group and groups $-NR_8R_9$ in which R_8 and R_9 are chosen, independently of each other, from hydrogen and (C_1-C_4) alkyl groups,
- R_2 is chosen from hydrogen and halogens,
- R_3 is chosen from hydrogen, halogens, (C_1-C_4) alkyl groups, (C_1-C_6) alkoxy groups, a guanidino group, groups $-NR_{10}R_{11}$ in which R_{10} and R_{11} are chosen, independently of each other, from hydrogen, (C_1-C_4) alkyl groups, (C_1-C_4) phenylalkyl groups and groups $-(CH_2)_n-Y$ with Y being chosen from halogens and CN, $-CH(O-Et)_2$, (C_1-C_6) alkoxy, $-O-(CH_2)_2-N(CH_3)_2$ and $-N(CH_3)_2$ groups and n = 1 to 3,
- R_4 is chosen from hydrogen, halogens, nitro groups and groups $-NR_{12}R_{13}$ in which R_{12} and R_{13} are chosen, independently of each other, from hydrogen and (C_1-C_4) alkyl groups,
- R_5, R_6 and R_7 are chosen from:

hydrogen or a halogen atom,

C_1-C_6 alkyl, hydroxyl, C_1-C_6 alkoxy, (C_1-C_6)alkoxy(C_1-C_6)alkyl, (C_1-C_4)alkylcarbonyloxy-(C_1-C_4)alkyl, -CHO, -COOH, -CN, $-CO_2R_{14}$, $-CONHR_{14}$ and $-CONR_{14}R_{15}$ groups, $-NHCOR_{14}$ and $-NR_{14}R_{15}$ in which R_{14} and R_{15} are chosen, independently of each other, from hydrogen and (C_1-C_6) alkyl, -phenyl-CO-CH_3 and $-CH_2-CH_2-N(CH_3)_2$ groups,

-phenyl-$CO-CH_3$ or -phenyl-$CO-CH=CH-N(CH_3)_2$, morpholino, nitro or SO_3H groups,

groups:



R_{16} and R_{17} being chosen from C_1-C_6 alkyl groups and Ar being a C_6-C_{14} aryl group,

with the exclusion of compounds in which either R_1, R_2, R_3, R_4, R_5, R_6, R_7 = H, or R_1, R_3, R_4, R_5, R_6, R_7 = H and R_2 = Br, or R_1, R_2, R_4, R_5, R_6, R_7 = H and $R_3 = OCH_3$, or R_1, R_2, R_3, R_4, R_6, R_7 = H and R_5 = OH or OCH_3 or $R_1 = NO_2$ and R_2, R_3, R_4, R_5, R_6, R_7 = H,

and the addition salts of these compounds with pharmaceutically acceptable acids.